

What is claimed is:

1. A method of controlling the doping level of a doped region in an integrated circuit, comprising  
5 using a perforated mask during doping of the doped region, the mask having a predefined ratio of perforation to mask material.
2. A method of claim 1, further comprising annealing the doped region.
3. A method of claim 1, further comprising exposing the doped region to one or more predefined elevated temperatures for predefined times.
- 10 4. A method of varying doping levels across an integrated circuit (IC), comprising providing a perforated mask with varying ratios of masked portion to unmasked portion, and applying dopant to the IC to define doped regions.
- 15 5. A method of claim 4, further comprising annealing the doped region.
6. A method of claim 4, further comprising exposing the doped region to one or more predefined elevated temperatures for predefined times.
7. A method of varying the breakdown voltages of snapback devices on an integrated circuit, comprising  
20 using a mask of varying degrees of perforation during formation of isolation layers.
8. A method of claim 7, further comprising annealing the snapback devices.
9. A method of claim 7, further comprising exposing the snapback devices to one or more predefined elevated temperatures for predefined times.
- 25 10. A method of controlling the breakdown voltage of a snapback device, comprising controlling doping levels of an isolation region by using a perforated mask during doping of the isolation region.
11. A method of claim 10, further comprising annealing the device.

12. A method of claim 10, further comprising exposing the device to one or more predefined elevated temperatures for predefined times.
13. A method of increasing the breakdown voltage of a snapback device comprising
- 5           forming an isolation layer between active regions and substrate of the device, wherein the isolation layer includes forming spotted implants.
14. A method of claim 13, wherein the spotted implants are formed by making use of a mask with intermittent openings.
15. A method of claim 13, wherein the spotted implants are provided before one or both of an epitaxial layer being grown and high diffusion drive taking place.
- 10
16. A method of claim 13, wherein the snapback device is an ESD protection device.
17. A method of claim 13, further comprising annealing the device.
- 15
18. A method of claim 13, further comprising exposing the device to one or more predefined elevated temperatures for predefined times.